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BIOS Setup

Introduction

The purpose of this manual is to describe the settings in the AMI BIOS Setup program on this motherboard. The Setup program allows users to modify the basic system configuration and save these settings to CMOS RAM. The power of CMOS RAM is supplied by a battery so that it retains the Setup information when the power is turned off.

Basic Input-Output System (BIOS) determines what a computer can do without accessing programs from a disk. This system controls most of the input and output devices such as keyboard, mouse, serial ports and disk drives. BIOS activates at the first stage of the booting process, loading and executing the operating system. Some additional features, such as virus and password protection or chipset fine-tuning options are also included in BIOS.

The rest of this manual will to guide you through the options and settings in BIOS Setup.

Plug and Play Support

This AMI BIOS supports the Plug and Play Version 1.0A specification.

EPA Green PC Support

This AMI BIOS supports Version 1.03 of the EPA Green PC specification.

APM Support

This AMI BIOS supports Version 1.1&1.2 of the Advanced Power Management (APM) specification. Power management features are implemented via the System Management Interrupt (SMI). Sleep and Suspend power management modes are supported. Power to the hard disk drives and video monitors can also be managed by this AMI BIOS.

ACPI Support

AMI ACPI BIOS support Version 1.0/2.0 of Advanced Configuration and Power interface specification (ACPI). It provides ASL code for power management and device configuration capabilities as defined in the ACPI specification, developed by Microsoft, Intel and Toshiba.

PCI Bus Support

This AMI BIOS also supports Version 2.3 of the Intel PCI (Peripheral Component Interconnect) local bus specification.

DRAM Support

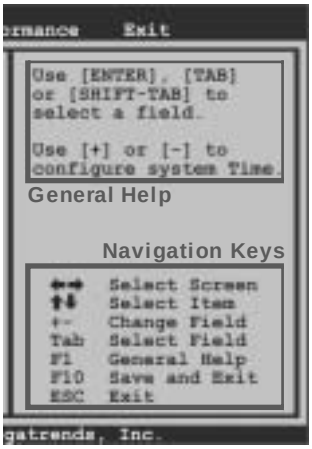
DDR2 SDRAM (Double Data Rate II Synchronous DRAM) is supported.

Supported CPUs

This AMI BIOS supports the AMD CPU.

Using Setup

When starting up the computer, press **<Del>** during the **Power-On Self-Test (POST)** to enter the BIOS setup utility.
In the BIOS setup utility, you will see **General Help** description at the top right corner, and this is providing a brief description of the selected item. **Navigation Keys** for that particular menu are at the bottom right corner, and you can use these keys to select item and change the settings.

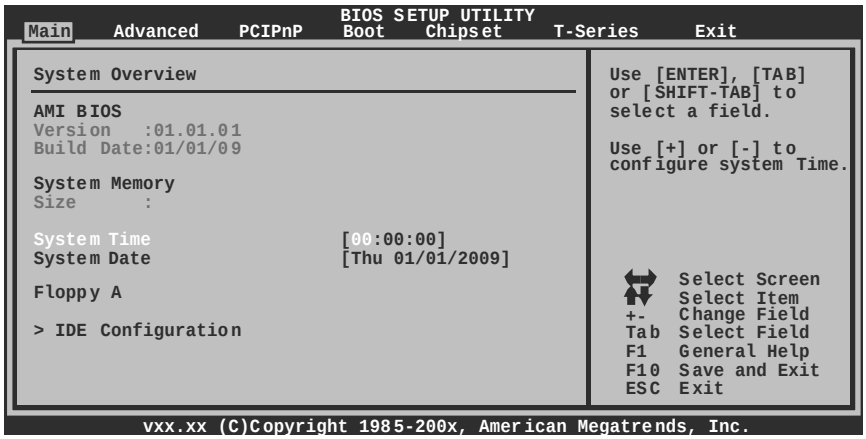


Notice

- The default BIOS settings apply for most conditions to ensure optimum performance of the motherboard. If the system becomes unstable after changing any settings, please load the default settings to ensure system's compatibility and stability. Use Load Setup Default under the Exit Menu.
- For better system performance, the BIOS firmware is being continuously updated. The BIOS information described in this manual is for your reference only. The actual BIOS information and settings on board may be slightly different from this manual.
- The content of this manual is subject to be changed without notice. We will not be responsible for any mistakes found in this user's manual and any system damage that may be caused by wrong-settings.

1 Main Menu

Once you enter AMI BIOS Setup Utility, the Main Menu will appear on the screen providing an overview of the basic system information.



AMI BIOS

Shows system information, including BIOS version and built date.

System Memory

Shows system memory size.

System Time

Set the system internal clock.

System Date

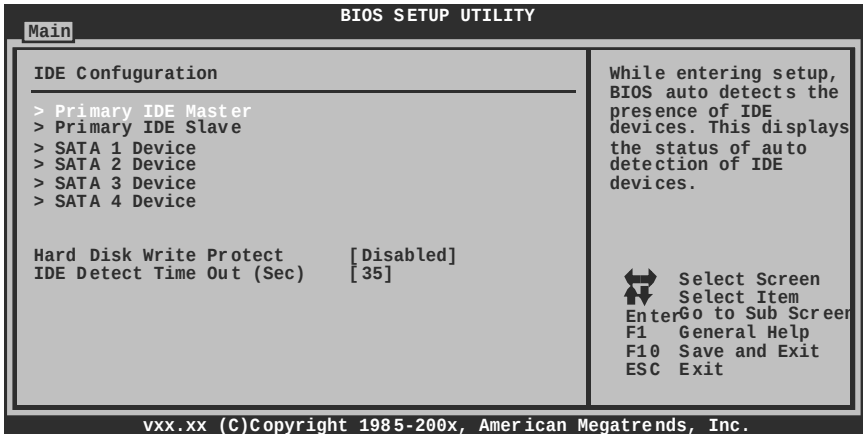
Set the system date. Note that the 'Day' automatically changes when you set the date.

Floppy A

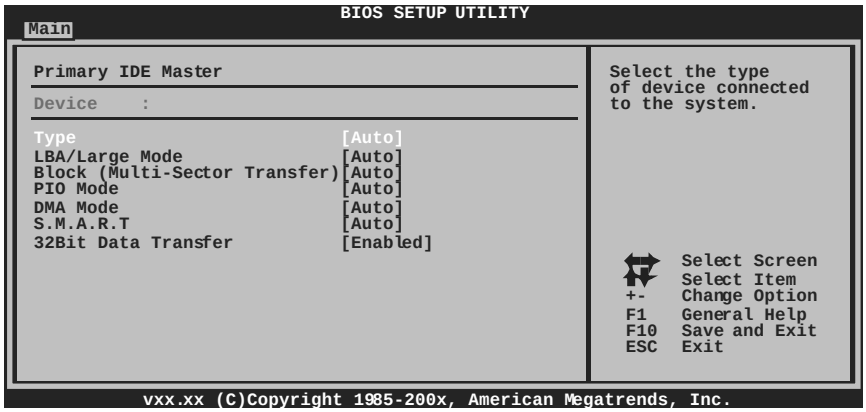
Select the type of floppy disk drive installed in your system.
Options: 360K, 5.25 in / 1.2M, 5.25 in / 720K, 3.5 in / 1.44M, 3.5 in / 2.88M, 3.5 in / None

IDE Configuration

The BIOS will automatically detect the presence of IDE/SATA devices. There is a sub-menu for each IDE/SATA device. Select a device and press <Enter> to enter the sub-menu of detailed options.



Primary IDE Master/Slave ; SATA 1/2/3/4 Device



The BIOS detects the information and values of respective devices, and these information and values are shown below to the name of the sub-menu.

Type
Select the type of the IDE/SATA drive.
Options: Auto (Default) / CDROM / ARMD / Not Installed

LBA/Large Mode
Enable or disable the LBA mode.
Options: Auto (Default) / Disabled

Block (Multi-Sector Transfer)
Enable or disable multi-sector transfer.
Options: Auto (Default) / Disabled

PIO Mode
Select the PIO mode.
Options: Auto (Default) / 0 / 1 / 2 / 3 / 4

DMA Mode
Select the DMA mode.
Options: Auto (Default) / SWDMA0 ~ 2 / MWDMA0 ~ 2 / UDMA0 ~ 5

S.M.A.R.T
Set the Smart Monitoring, Analysis, and Reporting Technology.
Options: Auto (Default) / Disabled / Enabled

32Bit Data Transfer
Enable or disable 32-bit data transfer.
Options: Enabled (Default) / Disabled

Hard Disk Write Protect

Disable or enable device write protection. This will be effective only if the device is accessed through BIOS.
Options: Disabled (Default) / Enabled

IDE Detect Time Out (Sec)

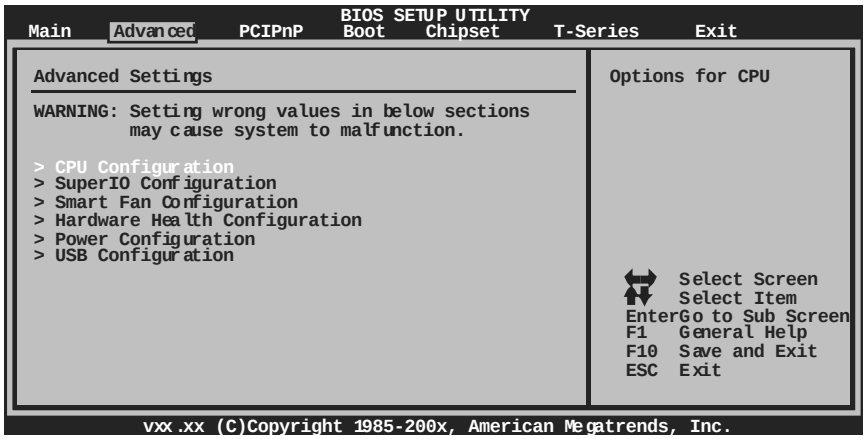
Select the time out value for detecting IDE/SATA devices.
Options: 35 (Default) / 30 / 25 / 20 / 15 / 10 / 5 / 0

2 Advanced Menu

The Advanced Menu allows you to configure the settings of CPU, Super I/O, Power Management, and other system devices.

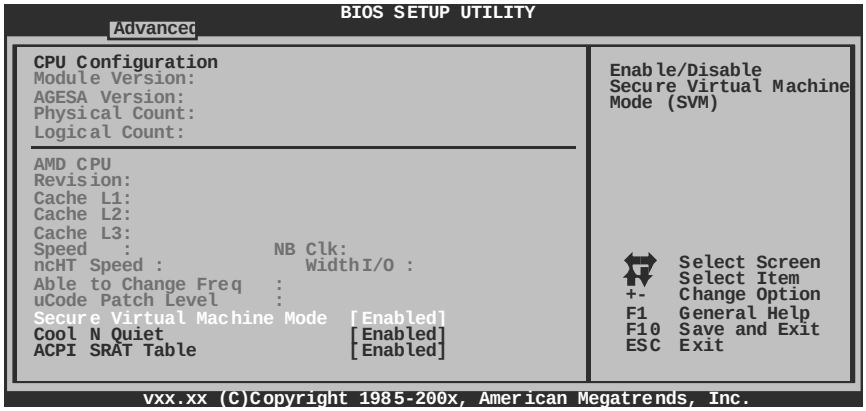
Notice

- Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



CPU Configuration

This item shows the CPU information that the BIOS automatically detects.



Secure Virtual Machine Mode

Virtualization Technology can virtually separate your system resource into several parts, thus enhance the performance when running virtual machines or multi interface systems.
Options: Enabled (Default) / Disabled

Cool N Quiet

This item allows you to enable or disable the Cool & Quiet power saving technology.
Options: Enabled (Default) / Disabled

ACPI SRAT Table

The operating system scans the ACPI SRAT at boot time and uses the information to better allocate memory and schedule software threads for maximum performance. This item controls whether the SRAT is made available to the operating system at boot up, or not.
Options: Enabled (Default) / Disabled

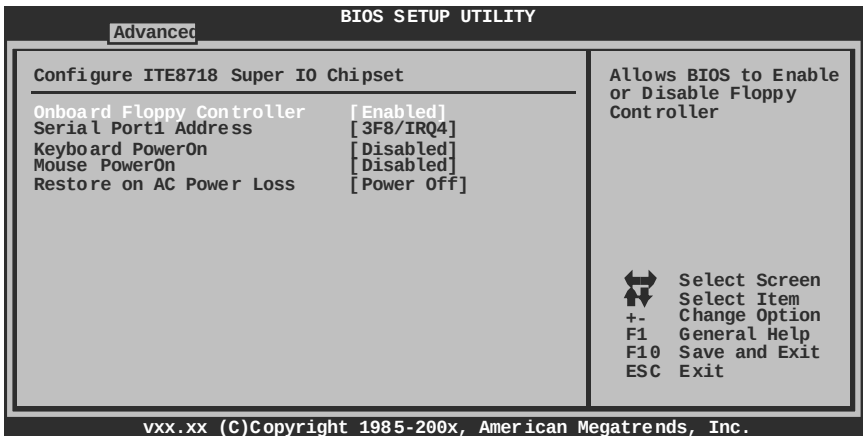
Probe Filter

This item allows you to control the initialization mode for Probe Filter.
Options: Auto (Default) / Disabled / MP Mode

C1E Support

This item allows you to configure the Enhanced Halt State (C1E) function, which may reduce the power consumption of your system when the system is idle.
Options: Disabled (Default) / Enabled

SuperIO Configuration



Onboard Floppy Controller

Select enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If you installed another FDC or the system uses no floppy drive, select disabled in this field.
Options: Enabled (Default) / Disabled

Serial Port1 Address

Select an address and corresponding interrupt for the first and second serial ports.
Options: 3F8/IRQ4 (Default) / 2F8/IRQ3 / 3E8/IRQ4 / 2E8/IRQ3 / Disabled

Keyboard PowerOn

This item allows you to control the keyboard power on function.
Options: Disabled (Default) / Specific Key / Stroke Key / Any Key

Specific Key Enter

This item will show only when Keyboard PowerOn is set "Specific Key."

Stroke Keys Selected

This item will show only when Keyboard PowerOn is set "Stroke Key."
Options: Ctrl+F1 (Default) / Wake Key / Power Key / Ctrl+F2 / Ctrl+F3 / Ctrl +F4 / Ctrl+F5 / Ctrl+F6

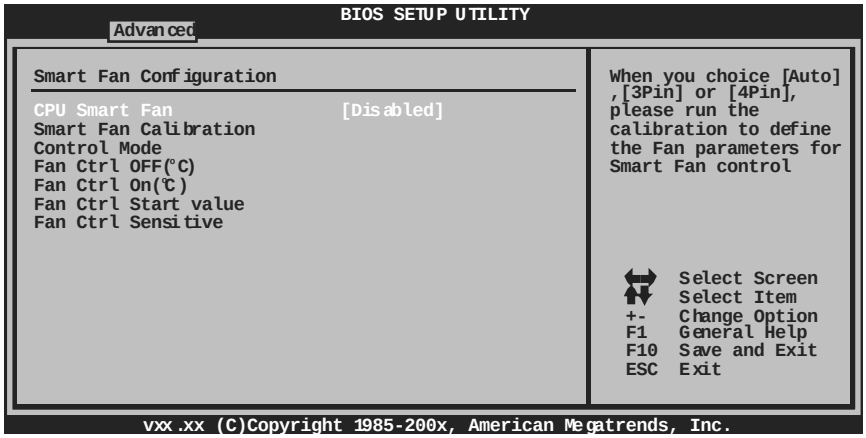
Mouse PowerOn

This item allows you to control the mouse power on function.
Options: Disabled (Default) / Enabled

Restore on AC Power Loss

This setting specifies how your system should behave after a power fail or interrupts occurs. By choosing Disabled will leave the computer in the power off state. Choosing Enabled will restore the system to the status before power failure or interrupt occurs.
Options: Power Off (Default) / Power ON / Last State

Smart Fan Configuration



CPU Smart Fan

This item allows you to control the CPU Smart Fan function.
Options: Disabled (Default) / Auto / 4Pin / 3Pin

Smart Fan Calibration

Choose this item and then the BIOS will auto test and detect the CPU/System fan functions and show CPU/System fan speed.

Control Mode

This item provides several operation modes of the fan.
Options: Quiet / Performance / Manual

Fan Ctrl OFF(℃)

If the CPU/System Temperature is lower than the set value, FAN will turn off.
Options: 0~127 (℃) (With the interval of 1℃)

Fan Ctrl On(℃)

CPU/System fan starts to work under smart fan function when arrive this set value.
Options: 0~127 (℃) (With the interval of 1℃)

Fan Ctrl Start Value

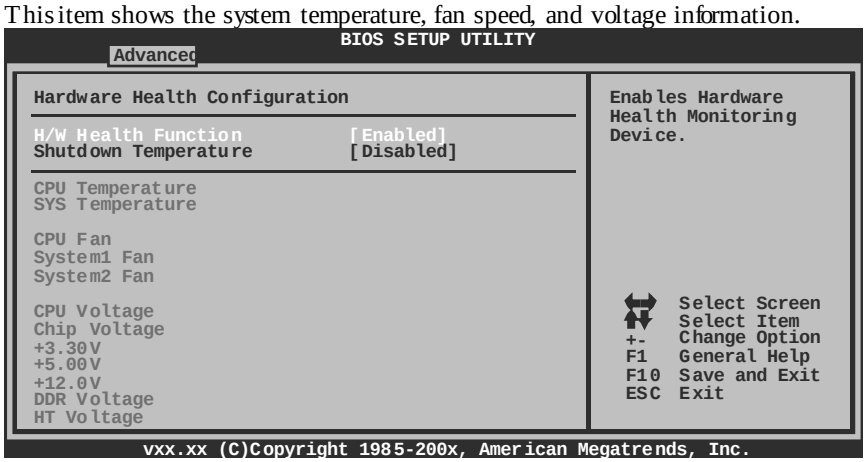
When CPU/System temperature arrives to the set value, the CPU/System fan will work under Smart Fan Function mode.
Options: 0~127 (With the interval of 1)

Fan Ctrl Sensitive

Increasing the value will raise the speed of CPU/System fan.
Options: 1~127 (With the interval of 1)

Hardware Health Configuration

This item shows the system temperature, fan speed, and voltage information.



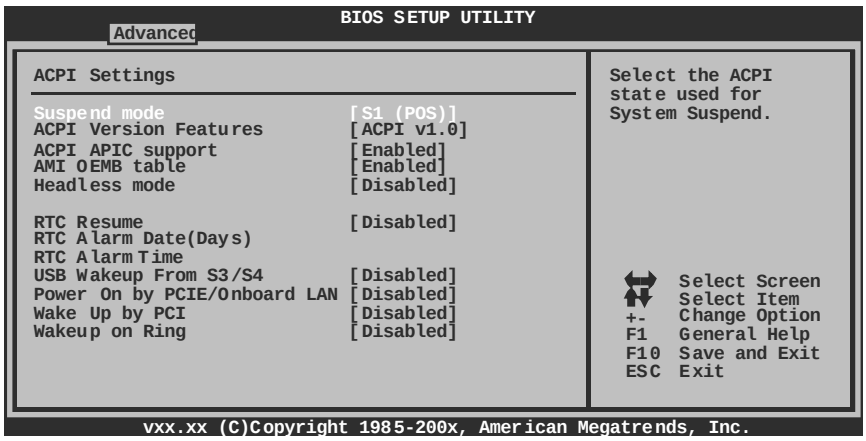
H/W Health Function

If with a monitoring system, the system will show PC health status during POST stage.
Options: Enabled (Default) / Disabled

Shutdown Temperature

This item allows you to set up the CPU shutdown Temperature. This item is only effective under Windows 98 ACPI mode.
Options: Disabled (Default) / 60℃/140℉ / 65℃/149℉ / 70℃/158℉ / 75℃/167℉ / 80℃/176℉ / 85℃/185℉ / 90℃/194℉

Power Configuration



Suspend mode

The item allows you to select the suspend type under the ACPI operating system.
Options: S1 (POS) (Default) Power on Suspend
S3 (STR) Suspend to RAM
S1 & S3 POS+STR

ACPI Version Features

The item allows you to select the version of ACPI.
Options: ACPI v1.0 (Default) / ACPI v2.0

ACPI APIC support

This item is used to enable or disable the motherboard's APIC (Advanced Programmable Interrupt Controller). The APIC provides multiprocessor support, more IRQs and faster interrupt handling.
Options: Enabled (Default) / Disabled

AMI OEMB table

Set this value to allow the ACPI BIOS to add a pointer to an OEMB table in the Root System Description Table (RSDT) table.
Options: Enabled (Default) / Disabled

Headless mode

This is a server-specific feature. A headless server is one that operates without a keyboard, monitor or mouse. To run in headless mode, both BIOS and operating system (e.g. Windows Server 2003) must support headless operation.
Options: Disabled (Default) / Enabled

RTC Resume

When "Enabled", you can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.
Options: Disabled (Default) / Enabled

RTC Alarm Date (Days)

You can choose which date the system will boot up.

RTC Alarm Time

You can choose the system boot up time, input hour, minute and second to specify.

USB Wakeup from S3/S4

This item allows you to enable or disabled the USB resume from S3/S4 function.
Options: Disabled (Default) / Enabled

Power On by PCIE/Onboard LAN

This item allows you control the wake on LAN (WOL) function.
Options: Disabled (Default) / Enabled

Wake Up by PCI

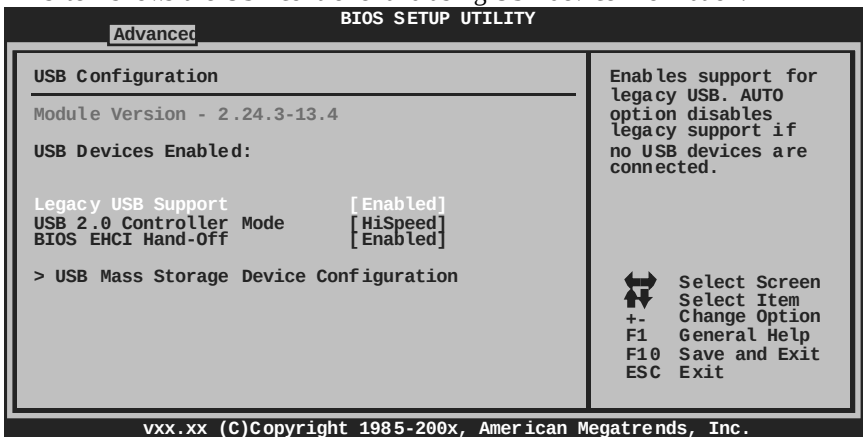
Enable / Disable PCI to generate a wake event.
Options: Disabled (Default) / Enabled

Wakeup on RING

This item allows you control the wake on ring function.
Options: Disabled (Default) / Enabled

USB Configuration

This item shows the USB controller and using USB device information.



Legacy USB Support

This item determines if the BIOS should provide legacy support for USB devices like the keyboard, mouse, and USB drive. This is a useful feature when using such USB devices with operating systems that do not natively support USB (e.g. Microsoft DOS or Windows NT).
Options: Enabled (Default) / Disabled

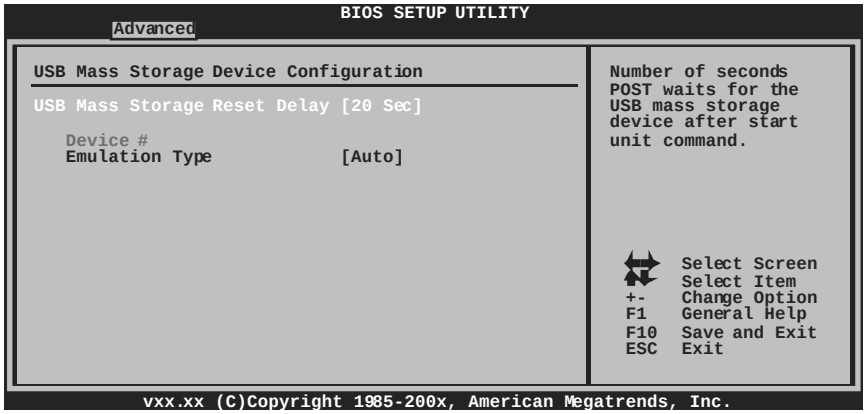
USB 2.0 Controller Mode

This item allows you to select the operation mode of the USB 2.0 controller.
Options: HiSpeed (Default) USB 2.0-480Mbps
FullSpeed USB 1.1-12Mbps

BIOS EHCI Hand-Off

This item allows you to enable support for operating systems without an EHCI hand-off feature.
Options: Enabled (Default) / Disabled

USB Mass Storage Device Configuration



USB Mass Storage Reset Delay
This item allows you to set the reset delay for USB mass storage device.
Options: 20 Sec (Default) / 10 Sec / 30 Sec / 40 Sec

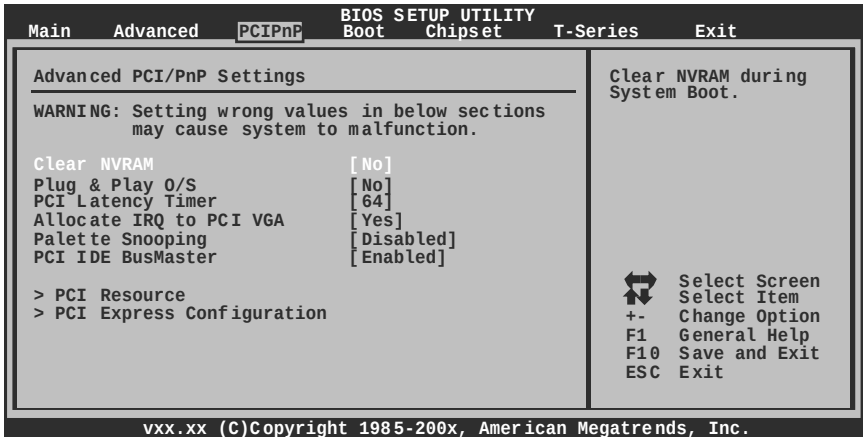
Emulation Type
This item allows you to select the emulation type of the USB mass storage device.
Options: Auto (Default) / Floppy / Forced FDD / Hard Disk / CDROM

3 PCIPnP Menu

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

Notice

- Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



Clear NVRAM

This item allows you to clear the data in the NVRAM (CMOS) by selecting "Yes".
Options: No (Default) / Yes

Plug & Play OS

When set to YES, BIOS will only initialize the PnP cards used for the boot sequence (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system like Window™ 95. When set to NO, BIOS will initialize all the PnP cards. For non-PnP operating systems (DOS, Netware™), this option must set to NO.
Options: No (Default) / Yes

PCI Latency Timer

This item controls how long a PCI device can hold the PCI bus before another takes over. The longer the latency, the longer the PCI device can retain control of the bus before handing it over to another PCI device.
Options: 64 (Default) / 0-255

Allocate IRQ to PCI VGA

This item allows BIOS to choose a IRQ to assign for the PCI VGA card.
Options: Yes (Default) / No

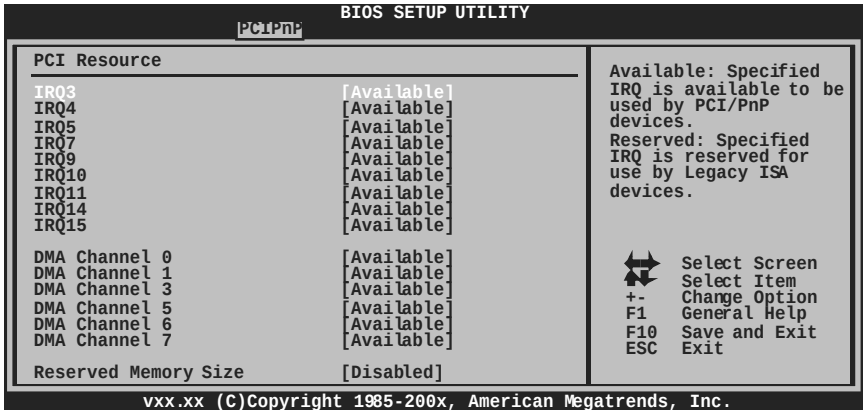
Palette Snooping

Some old graphic controllers need to "snoop" on the VGA palette and then map it to their display as a way to provide boot information and VGA compatibility. This item allows such snooping to take place.
Options: Disabled (Default) / Enabled

PCI IDE BusMaster

This item is a toggle for the built-in driver that allows the onboard IDE controller to perform DMA (Direct Memory Access) transfers.
Options: Enabled (Default) / Disabled

PCI Resource



IRQ3/4/5/7/9/10/11/14/15

These items will allow you to assign each system interrupt a type, depending on the type of device using the interrupt. The option "Available" means the IRQ is going to assign automatically.
Options: Available (Default) / Reserved

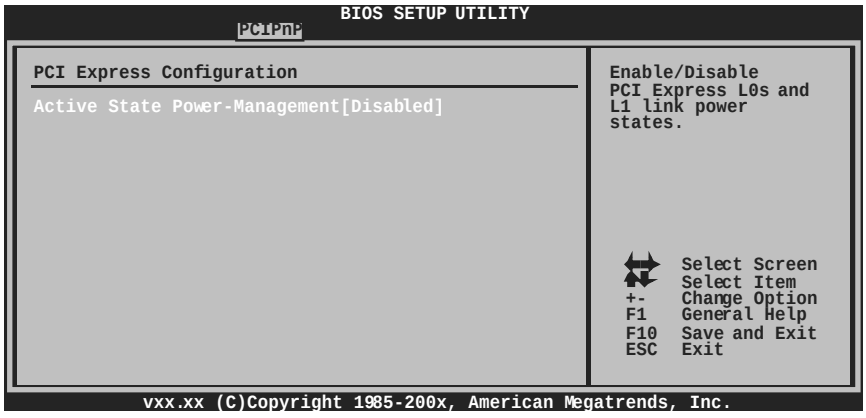
DMA Channel 0/1/3/5/6/7

These items will allow you to assign each DMA channel a type, depending on the type of device using the channel. The option "Available" means the channel is going to assign automatically.
Options: Available (Default) / Reserved

Reserved Memory Size

This item allows BIOS to reserve certain memory size for specific PCI device.
Options: Disabled (Default) / Enabled

PCI Express Configuration

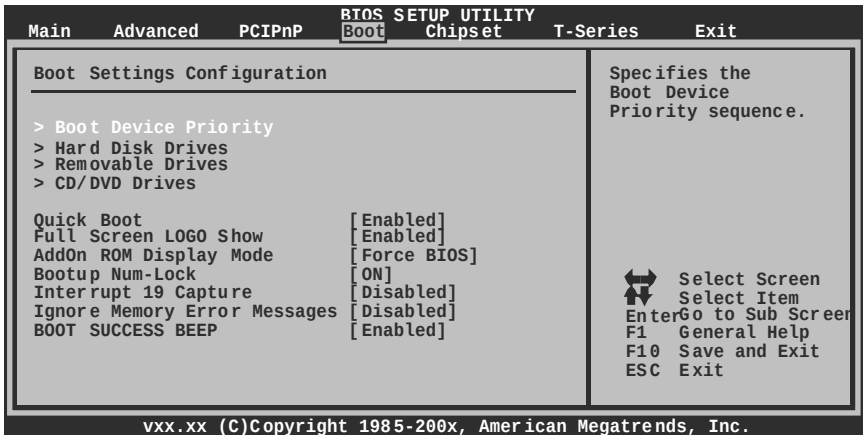


Active State Power-Management

This item sets the ASPM configuration for the PCI Express devices before the operating system boots. This function is for OS which does not support ASPM.
Options: Disabled (Default) / Enabled

4 Boot Menu

This menu allows you to setup the system boot options.



Boot Device Priority

Items in this sub-menu specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.
Options: Removable / Hard Disk / CDROM / Legacy LAN / Disabled

Hard Disk Drives

The BIOS will attempt to arrange the hard disk boot sequence automatically. You can also change the booting sequence. The number of device items that appears on the screen depends on the number of devices installed in the system.
Options: Pri. Master / Pri. Slave / Sec. Master / Sec. Slave / USB HDD0 / USB HDD1 / USB HDD2 / Bootable Add-in Cards

Removable Drives

The BIOS will attempt to arrange the removable drive boot sequence automatically. You can also change the booting sequence. The number of device items that appears on the screen depends on the number of devices installed in the system.
Options: Floppy Disks / Zip100 / USB-FDD0 / USB-FDD1 / USB-ZIP0 / USB-ZIP1 / LS120

CD/DVD Drives

The BIOS will attempt to arrange the CD/DVD drive boot sequence automatically. You can also change the booting sequence. The number of device items that appears on the screen depends on the number of devices installed in the system.
Options: Pri. Master / Pri. Slave / Sec. Master / Sec. Slave / USB CDROM0 / USB CDROM 1

Quick Boot

Enabling this option will cause an abridged version of the Power On Self-Test (POST) to execute after you power up the computer.
Options: Enabled (Default) / Disabled

Full Screen LOGO Show

This item allows you to enable/disable Full Screen LOGO Show function.
Options: Enabled (Default) / Disabled

AddOn ROM Display Mode

This item sets the display mode for option ROM.
Options: Force BIOS (Default) / Keep Current

Bootup Num-Lock

Selects the NumLock State after the system switched on.
Options: ON (Default) / OFF

Interrupt 19 Capture

When set to Enabled, this item allows the option ROMs to trap interrupt 19.
Options: Disabled (Default) / Enabled

Ignore Memory Error Messages

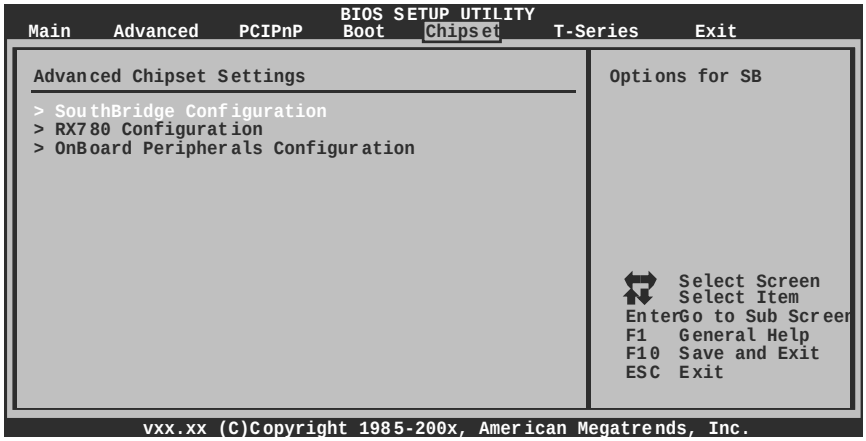
When set to Enabled, BIOS would ignore memory error messages.
Options: Disabled (Default) / Enabled

BOOT SUCCESS BEEP

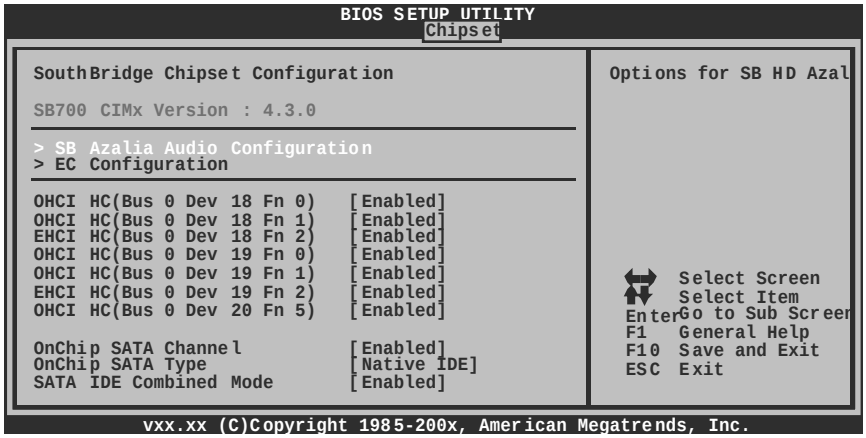
When this item is set to Enabled, BIOS will let user know boot success with beep.
Options: Enabled (Default) / Disabled

5 Chipset Menu

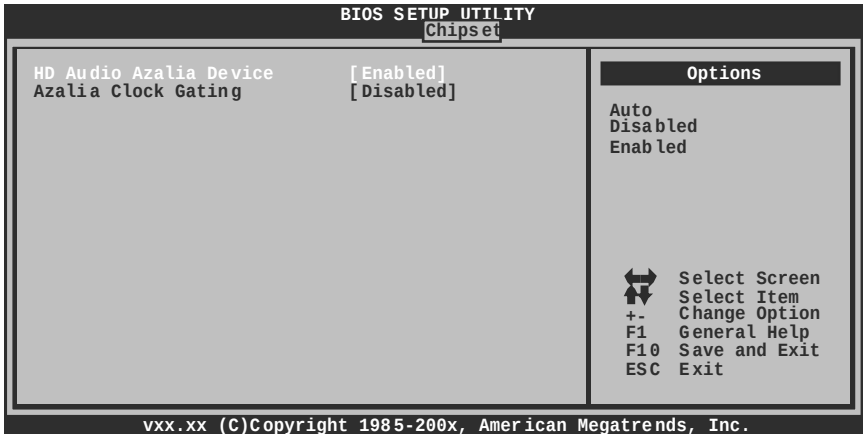
This submenu allows you to configure the specific features of the chipset installed on your system. This chipset manage bus speeds and access to system memory resources, such as DRAM. It also coordinates communications with the PCI bus.



SouthBridge Configuration



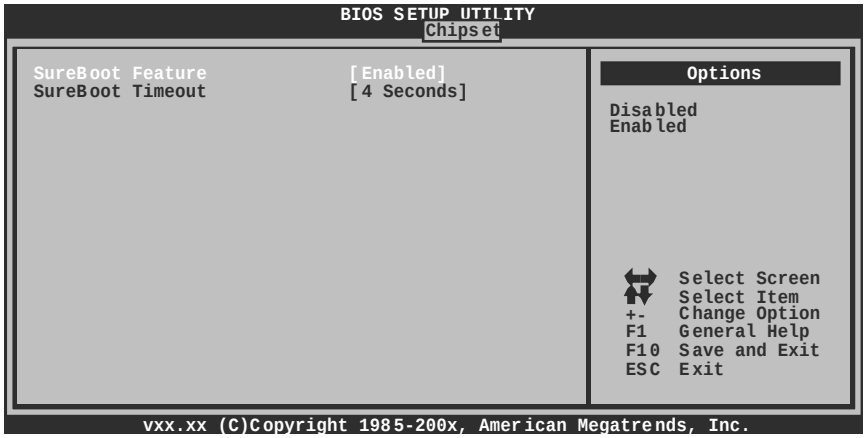
SB Azalia Audio Configuration



HD Audio Azalia Device
This item allows you to control the HD audio device.
Options: Enabled (Default) / Auto / Disabled

Azalia Clock Gating
Options: Disabled (Default) / Enabled

EC Configuration



SureBoot Feature
This item allows you to control the SureBoot function. SureBoot is a technology that ensures a complete Windows environment will be available disaster recovery situations.
Options: Enabled (Default) / Disabled

SureBoot Timeout
This item allows you to control the SureBoot timeout.
Options: 4 Seconds (Default) / 1 Second / 2 Seconds / 3 Seconds

OHCI HC(Bus 0 Dev 18/19/20 Fn 0/1/5)

Options: Enabled (Default) / Disabled

EHCI HC(Bus 0 Dev 18/19 Fn 2)

Options: Enabled (Default) / Disabled

OnChip SATA Channel

This option allows you to enable the on-chip Serial ATA.
Options: Enabled (Default) / Disabled

OnChip SATA Type

This option allows you to select the on-chip Serial ATA operation mode.
Options: Native IDE (Default) / RAID / AHCI / Legacy IDE / IDE→AHCI

Option ROM POST Delay

Options: Disabled (Default) / 1 ~ 7 Seconds

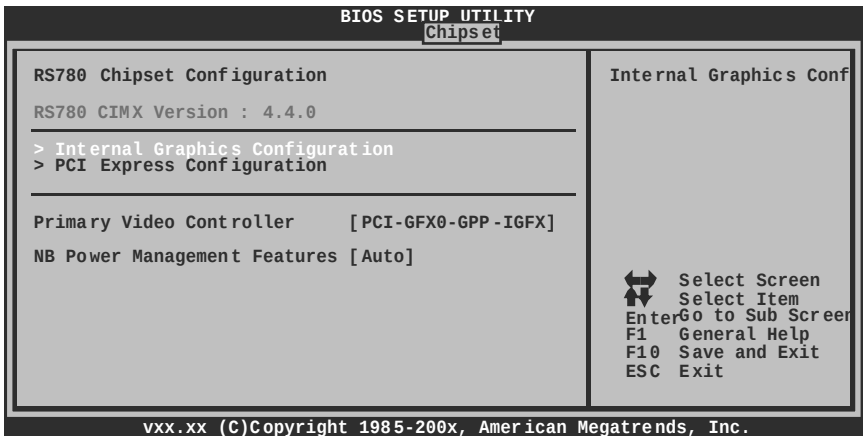
SATA IDE Combined Mode

This option controls the SATA/PATA combined mode.
Options: Enabled (Default) / Disabled

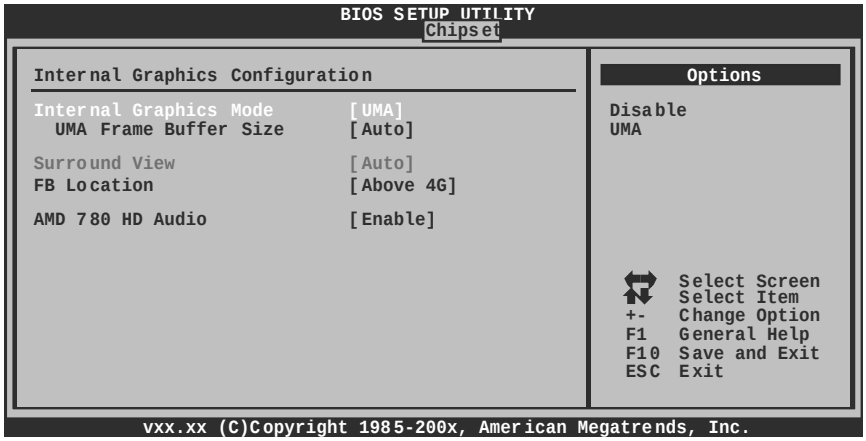
Power Saving Features

Disable / Enable power saving features in SB. As general rule, this feature should be disabled for desktop and enabled for mobile. See AMD SB700 Power Saving document for more details.
Options: Disabled (Default) / Enabled

RS780 Configuration



Internal Graphics Configuration



Internal Graphics Mode

This item allows you to select the memory mode used for internal graphics device.
Options: UMA (Default) / Disable

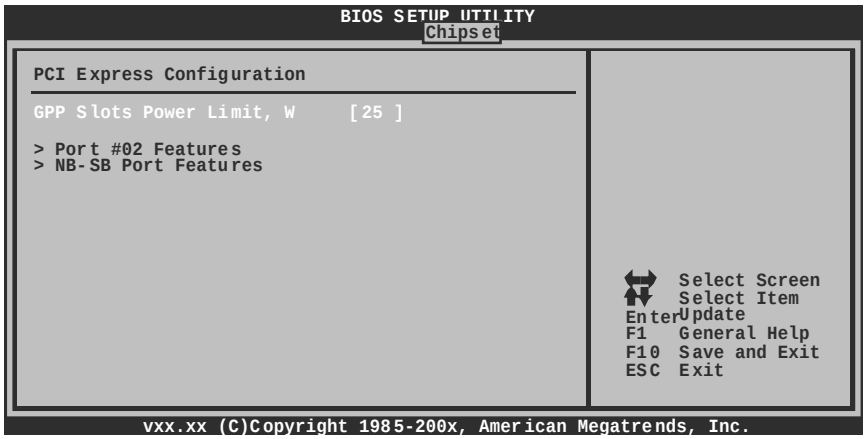
UMA FrameBuffer Size
This item allows you to choose the UMA frame buffer size for internal graphics.
Options: Auto (Default) / 32MB / 64MB / 128MB / 256MB / 512MB

Surround View
This item allows you to control the Surround View Function.
Options: Auto (Default) / Disabled

FB Location
This item allows you to set the FB-DIMM location.
Options: Above 4G (Default) / Under 4G

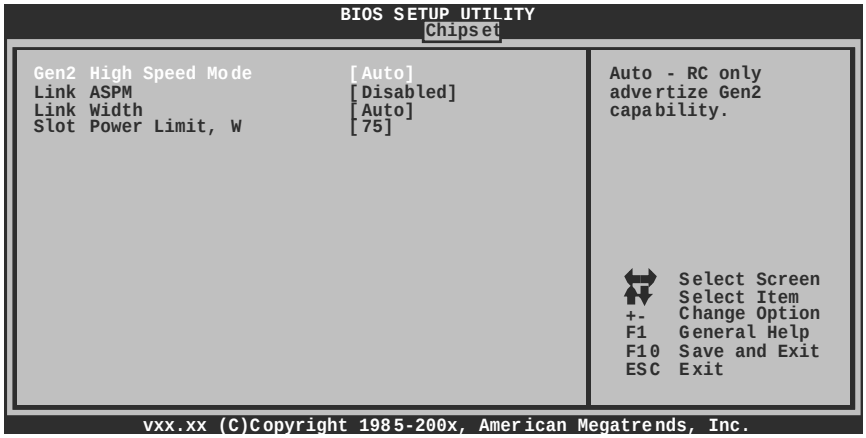
AMD 780 HDAudio
This item allows you to control the northbridge HD azalia (HDMI audio) function.
Options: Enabled (Default) / Disabled

PCI Express Configuration



GPP Slots Power Limit, W
Options: 25 (Default) / 0-255

Port #02 Features



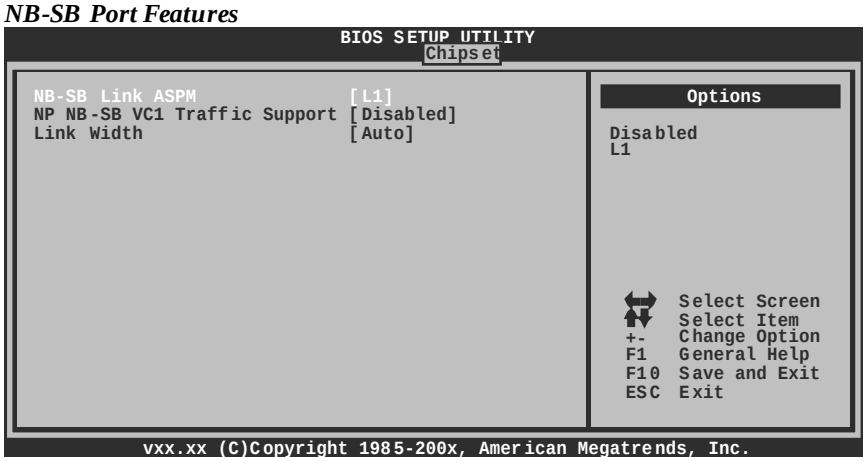
Gen2 High Speed Mode
Options: Auto (Default) / Disabled / Software Initiated / Advertised RC

Link ASPM
Options: Disabled (Default) / L0s / L1 / L0x & L1

Link Width
Options: Auto (Default) / x1 / x2 / x4 / x8 / x16

Slot Power Limit, W
Options: 75 (Default) / 0-255

NB-SB Port Features



NB-SB Link ASPM
Options: L1 (Default) / Disabled

NP NB-SB VC1 Traffic Support
Options: Disabled (Default) / Enabled

Link Width
Options: Auto (Default) / x1 / x2 / x4

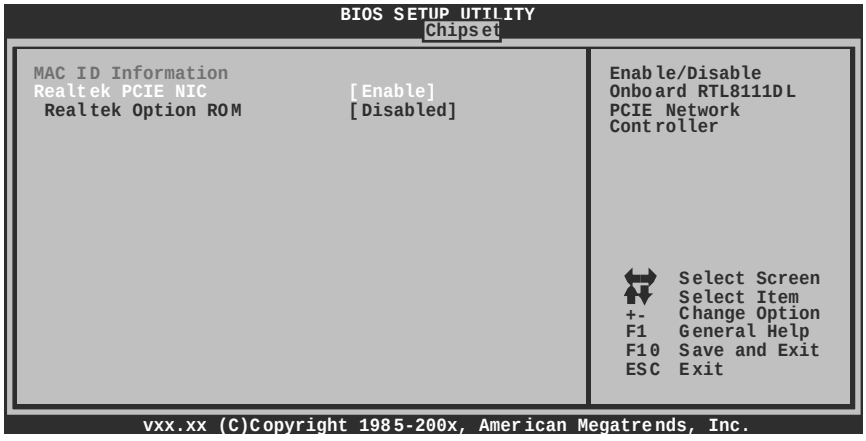
Primary Video Controller

This option allows you to select the video controller in charge.
Options: PCI-GFX0-GPP-IGFX (Default) / GFX0-GPP-IGFX-PCI / GPP-GFX0-IGFX-PCI / IGFX-GFX0-GPP-PCI

NB Power Management Features

This option controls the NB power management function.
Options: Auto (Default) / Disabled

OnBoard Peripherals Configuration



MAC ID Information

This area shows the MAC ID.

Realtek PCIE NIC

This option allows you to control the onboard LAN controller.
Options: Enable (Default) / Disable

Realtek Option ROM

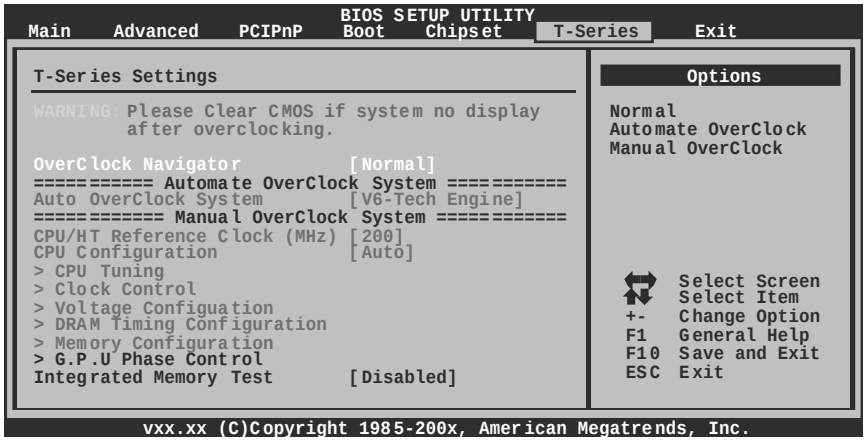
This item allows you to enable or disable the Onboard LAN Boot ROM.
Options: Disabled (Default) / Enabled

6 T-Series Menu

This submenu allows you to change voltage and clock of various devices.
(However, we suggest you use the default setting. Changing the voltage and clock improperly may damage the device.)

Notice

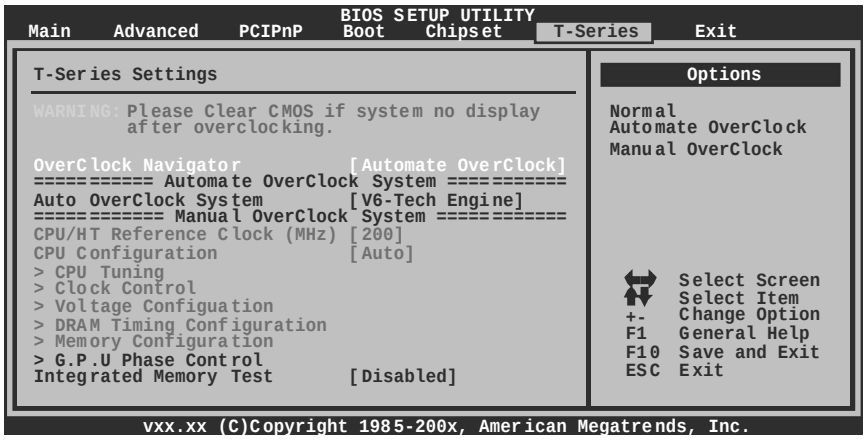
- Beware of that setting inappropriate values in items of this menu may cause system to malfunction.



OverClock Navigator

OverClock .Navigator is designed for beginners in overclock field.
Based on many test and experiments from Biostar Engineer Team, OverClock Navigator provides 3 default overclock configurations that are able to raise the system performance.
Options: Normal (Default) / Automate OverClock / Manual OverClock

Auto OverClock System



The Overclock Navigator provides 3 different engines helping you to overclock your system. These engines will boost your system performance to different level.
Options:

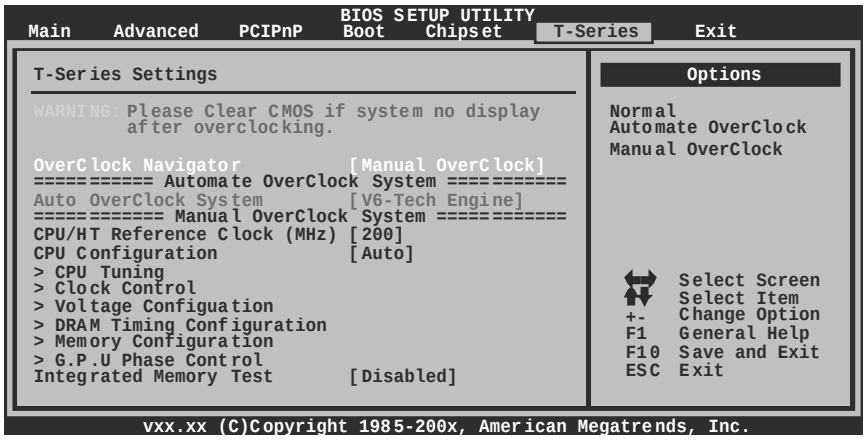
V6 Tech Engine
This engine will make a good over-clock performance.

V8 Tech Engine
This engine will make a better over-clock performance.

V12 Tech Engine
This engine will make a best over-clock performance.

Cautions:
Not every AMD CPU performs the above overclock setting ideally; the difference may vary with the installed CPU model.

Manual Overclock System (M.O.S.)



MOS is designed for experienced overclock users.
It allows users to customize personal overclock setting.

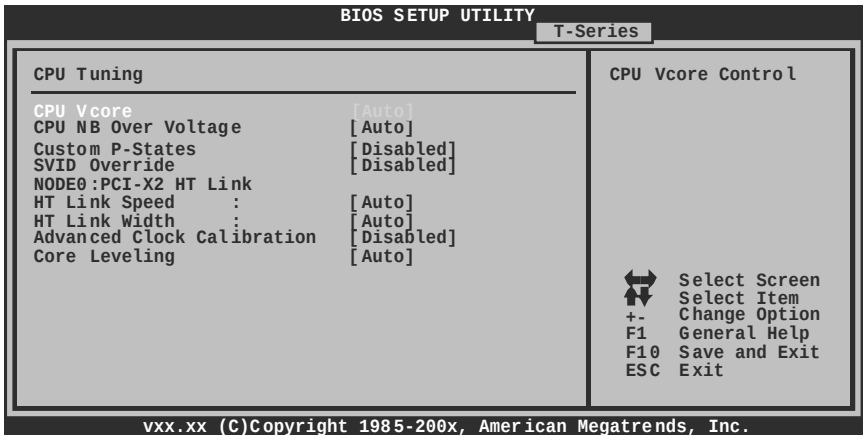
CPU/HT Reference Clock (MHz)

This item allows BIOS to select CPU Over Clock.
Options: 200MHz (Default) / 200MHz~600MHz

CPU Configuration

This item allows you to save CPU configuration.
Options: Auto (Default) / Configure 1~7

CPU Tuning



CPU Vcore

This item allows you to select CPU Vcore Control.
Options: Auto (Default) / +0.050V ~ +1.450V (Interval: 0.05V)

CPU NB Over Voltage

This item allows you to select NB Over Voltage Control.
Options: Auto (Default) / +0.1V / +0.2V / +0.3V

Custom P-States

This item tells BIOS whether to use the setup options below this to configure the P-States, or whether to configure the P-States automatically.
Options: Disabled (Default) / Enabled

Core FID

This item allows you to select the Ratio/Frequency of AM2+ CPU.
Options: x8.0 1600MHz ~ x15.0 3000MHz (Differed by CPU)

Core VID

This function allows you to adjust the voltage of CPU.
Options: 0.0125V ~ 1.3500V (Differed by CPU).

Core DID

Options: Divided by 1 (Default) / Divided by 2 / Divided by 4 / Divided by 8 / Divided by 16

NB VID

Set the voltage to use for NB PState selected Value is saved in the _PSS object..
Options: 1.2000V (Default) / 0.0125V ~ 1.3500V.

NB FID

This item allows you to select the Frequency of NB chip.
Options: 2000MHz (Default) / 800MHz ~ 2000MHz

NB DID

Options: Divided by 1 (Default) / Divided by 2

SVID Override

Options: Disabled (Default) / 0.800V ~ 1.550V (Interval: 0.025V)

HT Link Speed

The HyperTransport link will run at this speed if it is slower than or equal to the system clock and the board is capable.
Options: Auto (Default) / 200MHz / 400MHz / 600MHz / 800MHz / 1GHz / 1.2GHz / 1.4GHz / 1.6GHz / 1.8GHz / 2.0GHz

HT Link Width

The HyperTransport link will run at this width.
Options: Auto (Default) / 8 Bit / 16 Bit

Advanced Clock Calibration

Advanced Clock Calibration (ACC) is an enhanced technology for overclocking, needing support from both chipset and CPU. When enabled, it will improve the stability of advanced overclocking greatly.
Options: Disabled (Default) / Auto / All Cores / Per Core

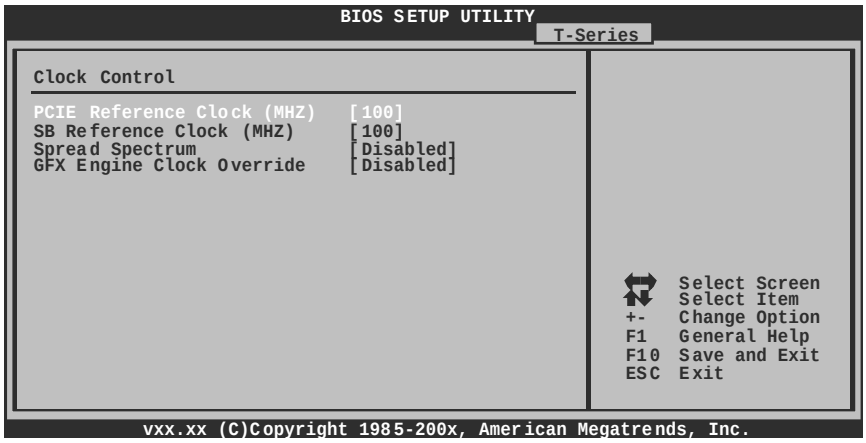
Value (All Cores) / Value (Core 0) / Value (Core 1) / Value (Core 2) / Value (Core 3)

This item shows only when "Advanced Clock Calibration" is set to "All Cores" or "Per Core".
Options: -2% (Default) / 0% / +2% / +4% / +6% / +8% / +10% / +12% / -4% / -6% / -8% / -10% / -12%

Core Leveling

Options: Auto (Default) / Force Single Core / Force Dual Core / Force Tri Core / Enable all Cores

Clock Control



PCIE/SB Reference Clock (MHz)

This item allows you to select ATIG/SB Reference Clock.
Options: 100 (Default) / 101~500

Spread Spectrum

This item allows you to control Spread Spectrum function.
Options: Disabled (Default) / Enabled

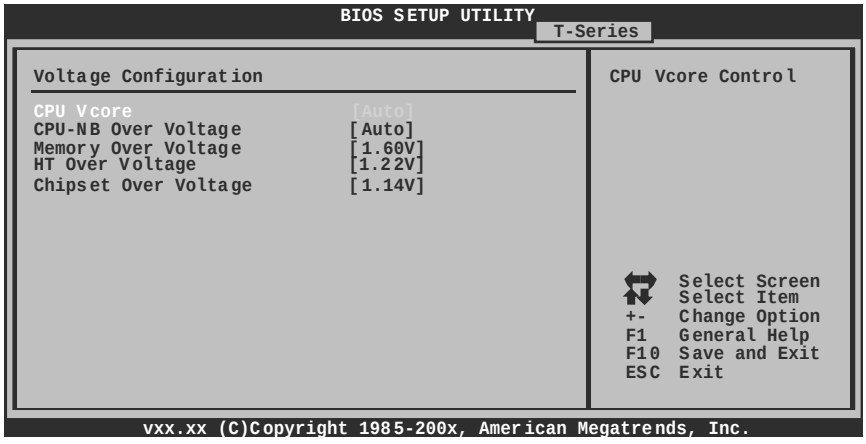
GFX Engine Clock Override

This item allows you to control the internal GFX engine clock override function.
Options: Disabled (Default) / Enabled

GFX Engine Clock

This item allows BIOS to select onboard GPU Over Clock.
Options: 500 (Default) / 150 ~ 1000

Voltage Configuration



CPU Vcore

This item allows you to select CPU Vcore Control.
Options: Auto (Default) / +0.050V ~ +1.450V (Interval: 0.05V)

CPU NB Over Voltage

This item allows you to select NB Over Voltage Control.
Options: Auto (Default) / +0.050V ~ +1.450V (Interval: 0.05V)

Memory Over Voltage

This item allows you to select DDR Over Voltage Control.
Options: 1.60V (Default) / 1.70V ~ 2.30V (Interval: 0.1V)

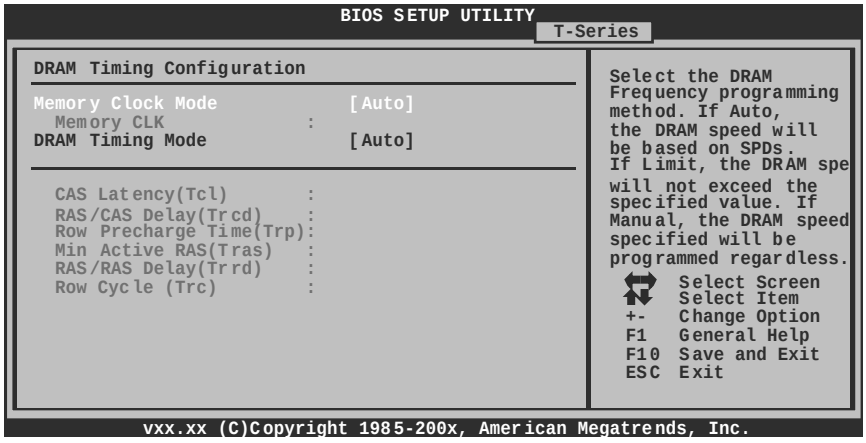
HT Over Voltage

This item allows you to select chipset Voltage Control.
Options: 1.22V (Default) / 1.27V / 1.32V / 1.37V

Chipset Over Voltage

This item allows you to select Vtt Voltage Control.
Options: 1.14V (Default) / 1.18V / 1.23V / 1.27V

DRAM Timing Configuration



Memory Clock Mode

This item allows you to control the Memory Clock.
Options: Auto (Default) / Manual / Limit

Memclock Value

This item allows you to set the Memory Clock.
Options: DDR3-800 (Default) / DDR3-1066 / DDR3-1333 / DDR3-1600 / Auto

DRAM Timing Mode

This item allows you to choose to manually or automatically regulate the DRAM Timing.
Options: Auto (Default) / DCT0 / DCT1 / Both

CAS Latency (CL)

Options: Auto (Default) / 3~6 CLK / 7CLK DH_Only

2T Command

Options: Auto (Default)

TRCD

Options: Auto (Default)

TRP

Options: Auto (Default)

tRTP

Options: Auto (Default)

TRAS

Options: Auto (Default)

TRC

Options: Auto (Default)

tWR

Options: Auto (Default)

TRRD

Options: Auto (Default)

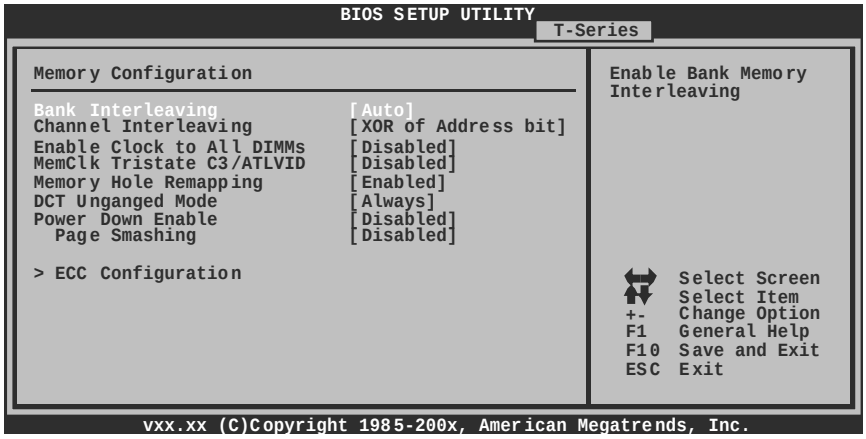
tWTR

Options: Auto (Default)

tRFC0 / tRFC1 / tRFC2 / tRFC3

Options: Auto (Default)

Memory Configuration



Bank Interleaving

Bank Interleaving is an advanced chipset technique used to improve memory performance. Memory interleaving increases bandwidth by allowing simultaneous access to more than one piece of memory.
Options: Auto (Default) / Disabled

Channel Interleaving

This item allows you to control the DDR2 dual-channel function.
Options: XOR of Address bits [20:16, 6] (Default) / XOR of Address bits [20:16, 9] / Address bits 6 / Address bits 12 / Disabled

Enable Clock to All DIMMs

This item determines whether the BIOS should actively reduce EMI (Electromagnetic Interference) and reduce power consumption by turning off unoccupied or inactive DIMM slots.
Options: Disabled (Default) / Enabled

MemClk Tristate C3/ATLVID

This item enables or disables the MemClk Tristate function in C3 Mode.
Options: Disabled (Default) / Enabled

Memory Hole Remapping

This item allows you to enable or disable the remapping of the overlapped PCI memory above the total physical memory. Only 64-bit OS supports this function.
Options: Enabled (Default) / Disabled

DCT Unganged Mode

This item controls the DRAM controller ganged (128bit*1) / unganged (64bit*2) dual-channel operation mode. If two DRAM modules with different size are installed, using unganged mode can still make it run in dual-channel operation.
Options: Always (Default) / Auto

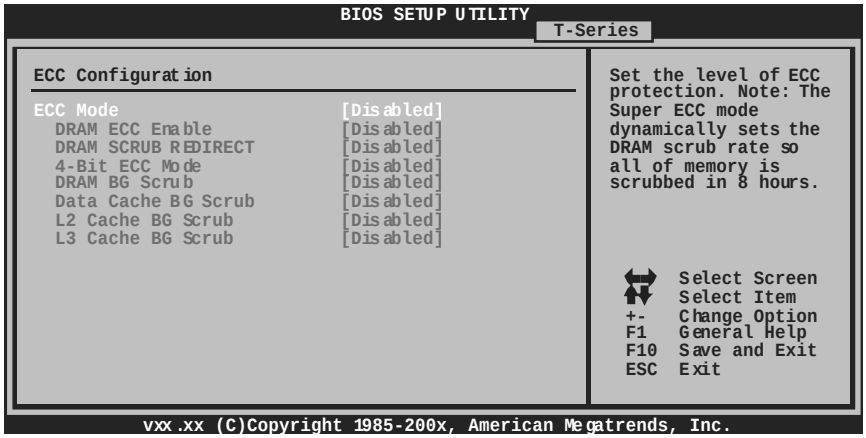
Power Down Enable

This item controls the DRAM power down function.
Options: Disabled (Default) / Enabled

Page Smashing

This item is S/W Control of Page Smashing Mechanism.
Options: Disabled (Default) / IC / DC / Both

ECC Configuration



ECC Mode
This item allows you to select the DRAM ECC Mode.
Options: Disabled (Default) / Basic / Good / Super / Max / User

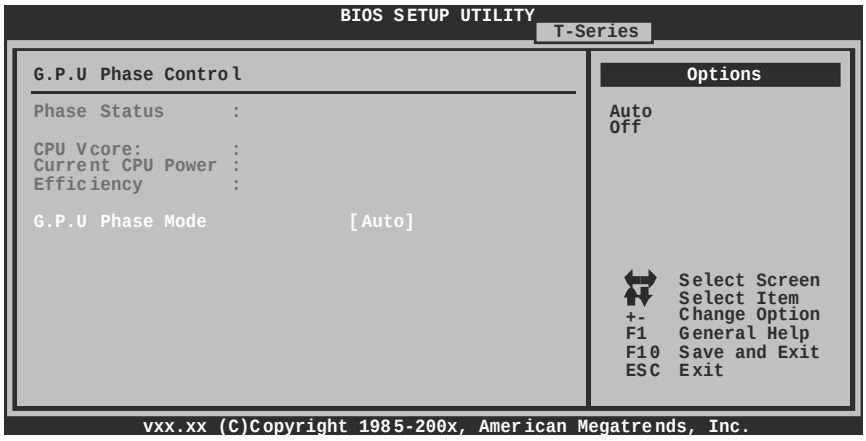
DRAM ECC Enabled
Options: Disabled (Default) / Enabled

DRAM Scrub Redirect
Options: Disabled (Default) / Enabled

4-bit ECC Mode
Options: Disabled (Default) / Enabled

DRAM BG Scrub/Data Cache BG Scrub/L2 Cache BG Scrub/L3 Cache BG Scrub
Options: Disabled (Default) / 40ns / 80ns / 160ns / 320ns / 640ns / 1.28us / 2.56us / 5.12us / 10.2us / 20.5us / 41.0us / 81.9us / 163.8us / 327.7us / 655.4us

G.P.U Phase Control



G.P.U Phase Mode

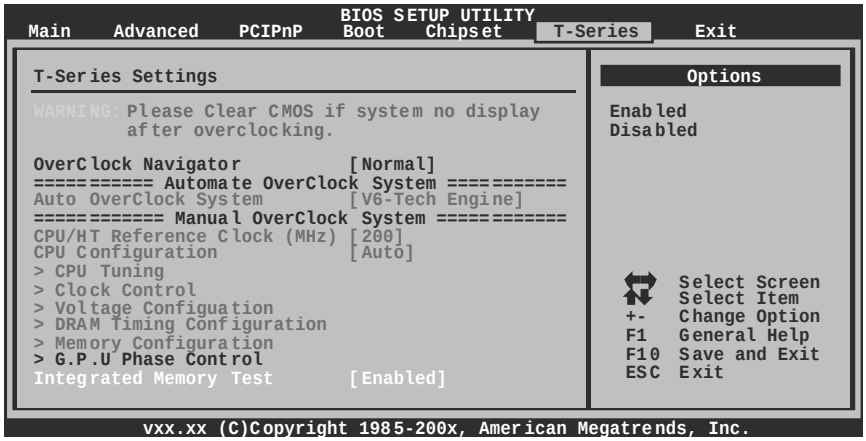
This item allows you to control G.P.U Phase Mode (power saving technology).
Options: Auto (Default) / Off

Integrated Memory Test

Integrated Memory Test allows users to test memory module compatibilities without additional device or software.

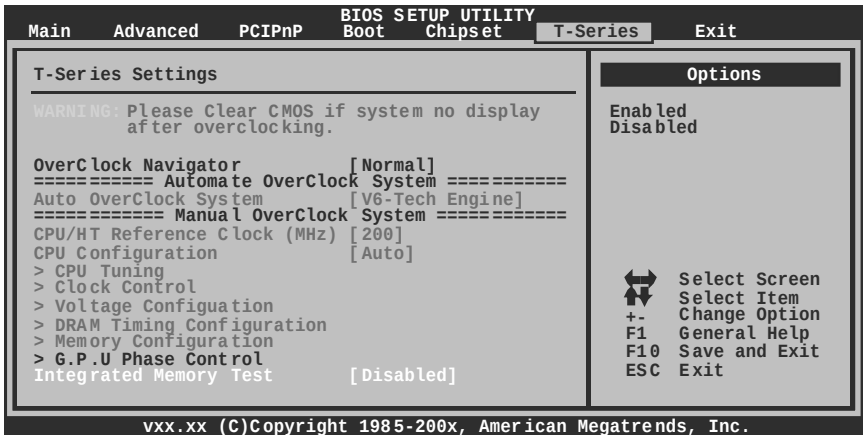
Step 1:

This item is disabled on default; change it to "Enable" to precede memory test.



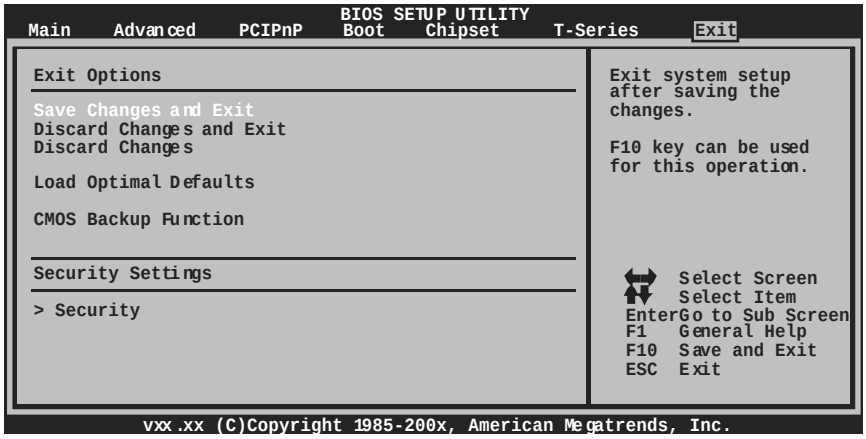
Step 2:

When the process is done, change the setting back from "Enabled" to "Disabled" to complete the test.



7 Exit Menu

This menu allows you to load the optimal default settings, and save or discard the changes to the BIOS items.



Save Changes and Exit

Save all configuration changes to CMOS RAM and exit setup.

Discard Changes and Exit

Abandon all changes made during the current session and exit setup.

Discard Changes

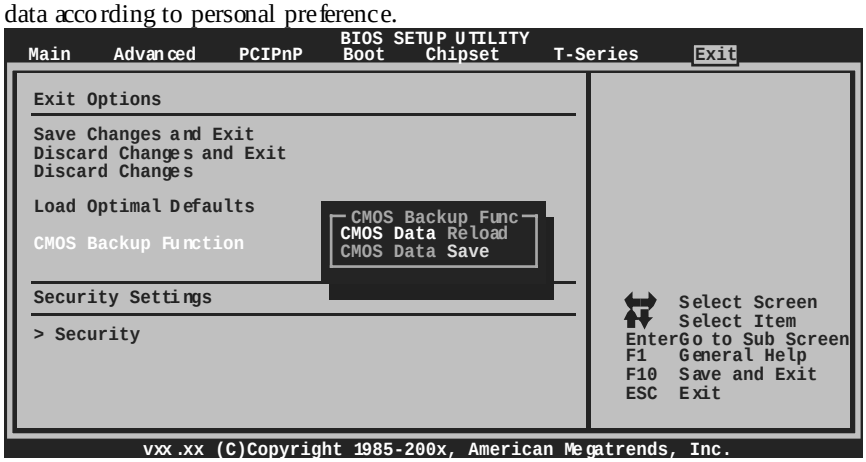
Abandon all changes made during the current session and restore the previously saved values.

Load Optimal Defaults

This selection allows you to reload the BIOS when problem occurs during system booting sequence. These configurations are factory settings optimized for this system.

CMOS Backup Function

It allows users to save different CMOS settings into BIOS-ROM and reload any saved CMOS setting for customizing system configurations.
Moreover, users are able to save an ideal overclock setting during overclock operation.
There are 10 sets of record addresses in total, and users are able to name the CMOS data according to personal preference.



Security

This sub-menu allows you to provide/revise supervisor and user password.

Change Supervisor Password

Setting the supervisor password will prohibit everyone except the supervisor from making changes using the CMOS Setup Utility. You will be prompted with to enter a password.

User Acess Level

This item allows supervisor to set the user level.
Options: Full Access (Default) / No Access / View Only / Limited

Change User Password

If the Supervisor Password is not set, then the User Password will function in the same way as the Supervisor Password. If the Supervisor Password is set and the User Password is set, the "User" will only be able to view configurations but will not be able to change them.

Clear User Password

This item is for clearing user password.

Password Check

This item is for setting the timing that checking password.
Options: Setup (Default) / Always

Boot Sector Virus Protection

This option allows you to choose the VIRUS Warning feature that is used to protect the IDE Hard Disk boot sector. If this function is enabled and an attempt is made to write to the boot sector, BIOS will display a warning message on the screen and sound an alarm beep.
Options: Disabled (Default) / Enabled